

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2005/000111

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 F16K31/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 F16K E21B H02K B63C B63B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/011580 A1 (JOHANSEN JOHN A ET AL) 31 January 2002 (2002-01-31)	1-4,6-9
Y	column 5, line 28 - column 7, line 60; figures	5
Y	GB 2 198 766 A (* K E INTERNATIONAL LIMITED) 22 June 1988 (1988-06-22) figure 6	5
X	US 5 447 078 A (ROBINSON, JR. ET AL) 5 September 1995 (1995-09-05) figures 1,2	1
X	US 3 324 875 A (ANDERSON CLIFFORD E) 13 June 1967 (1967-06-13) figure 1	1
	----- -/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the International filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the International filing date but later than the priority date claimed

- *T* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the International search

28 April 2005

Date of mailing of the International search report

13/05/2005

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Rusanu, I

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2005/000111

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 166 677 A (SCHOENBERG ET AL) 24 November 1992 (1992-11-24) figures 1,2 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2005/000111

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 2002011580	A1	31-01-2002	NO	20002528 A	19-11-2001
			GB	2364396 A , B	23-01-2002
GB 2198766	A	22-06-1988	NONE		
US 5447078	A	05-09-1995	CA	2132050 A1	18-03-1995
US 3324875	A	13-06-1967	US	3335740 A	15-08-1967
			AT	266529 B	25-11-1968
			DE	1475903 B1	25-06-1970
			GB	1085547 A	04-10-1967
			NL	6505789 A	08-11-1965
US 5166677	A	24-11-1992	NONE		